

Claims

What is claimed:

1. A method of operating an output signal non-linear element in a communication device, said method comprising:
biasing the non-linear element to a given bias level in response to a signal received by the device;
operating the non-linear element in a non-linear operating range; and
pre-distorting the output signal as a function of the bias level of the element.
2. The method according to claim 1, further comprising determining pre-distortion coefficients intended to compensate for distortions introduced by the non-linear element.
3. The method according to claim 2, wherein determining pre-distortion coefficients comprises evaluating signal response parameters of the non-linear element at a specific bias level.
4. The method according to claim 3, wherein the evaluated signal response parameters of the non-linear element are selected from the group consisting of phase shift, time delay, and gain.

5. The method according to claim 3, wherein determining pre-distortion coefficients comprises calculating coefficients based on the evaluated signal response.
6. The method according to claim 1, further comprising evaluating an output signal from the non-linear element, changing the bias level of the non-linear element if one or more parameters of the output signal from the non-linear element are either above or below predefined thresholds, and changing the pre-distortion of the signal entering the non-linear element to compensate for the change in the bias level.
7. The method according to claim 5, wherein the one or more parameters of the output signal from the non-linear element are selected from the group consisting of adjacent-channel-power-ratio and crest-factor.
8. The method according to claim 6, further comprising determining pre-distortion coefficients intended to compensate for distortions introduced by the non-linear element at a specific bias level.
9. The method according to claim 8, wherein determining pre-distortion coefficients comprises evaluating signal response parameters of the non-linear element at a specific bias level.

10. The method according to claim 9, wherein the evaluated signal response parameters of the non-linear element are selected from the group consisting of phase shift, time delay and gain.
11. The method according to claim 8, wherein determining pre-distortion coefficients comprises calculating coefficients based on the evaluated signal response parameters.
12. A system for operating an output signal non-linear element in a communication device, said system comprising:
 - a power efficiency control unit adapted to bias said non-linear element to a given bias level in response to a signal received by the device; and
 - a complex gain adjustment block adapted to pre-distort the signal as a function of pre-distortion coefficients determined associated with the given bias level.
13. The system according to claim 12, further comprising a coefficient adaptation unit adapted to determine pre-distortion coefficients intended to compensate for distortions introduced by the non-linear element at the given bias level.
14. The system according to claim 12, further comprising a baseband procession unit adapted to evaluate signal response parameters of the non-linear element at a specific bias level.

15. The system according to claim 14, wherein the evaluated signal response parameters of the non-linear element are selected from the group consisting of phase shift, time delay, and gain.
16. The system according to claim 14, where said coefficient adaptation unit determines pre-distortion coefficients based on the evaluated signal response parameters.
17. The system according to claim 14, wherein said baseband processing unit is adapted to evaluate an output signal from the non-linear element, and said power efficiency control unit is adapted to change the bias level of the non-linear element if one or more parameters of the output signal from the non-linear element are either above or below predefined thresholds.
18. The system according to claim 17, wherein the one or more parameters of the output signal from the non-linear element are selected from the group consisting of adjacent-channel-power-ratio and crest-factor.